

Claims:

1. An isolated polynucleotide which codes without interruption for a human differentially-regulated human angiogenesis polypeptide having an amino acid sequence as set forth in SEQ ID NOS 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44,
5 46, 48, 50, 52, 54, 56, or 58, or a complement thereto.
2. An isolated differentially-regulated human angiogenesis polynucleotide having a polynucleotide sequence as set forth in SEQ ID NOS 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 55, or 57, or a complement thereto,
10 and which is differentially-regulated in angiogenesis.
3. An isolated polynucleotide comprising, a polynucleotide sequence coding without interruption for a differentially-regulated human angiogenesis polypeptide, or a complement thereto,
15 said polypeptide having 90% or more amino acid sequence identity along its entire length to the polypeptide sequence as set forth in SEQ ID NOS 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, or 58.
4. An isolated polynucleotide comprising, a polynucleotide sequence coding without
20 interruption for a differentially-regulated human angiogenesis polypeptide and having 90% or more nucleotide sequence identity along its entire length to a polynucleotide sequence as set forth in SEQ ID NOS 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 55, or 57, or a complement thereto.
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5. An isolated polynucleotide which is specific for a differentially-regulated human angiogenesis gene of claim 1 and having a polynucleotide sequence selected from a polynucleotide sequence as set forth in SEQ ID NOS 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 55, or 57, or a complement thereto.
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6. An isolated polynucleotide of claim 5, wherein said fragment is effective in a polymerase chain reaction.

7. An isolated differentially-regulated human angiogenesis polypeptide of claim 1.
8. An isolated differentially-regulated human angiogenesis polypeptide of claim 2.
- 5 9. An isolated differentially-regulated human angiogenesis polypeptide of claim 3.
10. An isolated differentially-regulated human angiogenesis polypeptide of claim 4.
- 10 11. A method of detecting a nucleic acid coding for a differentially-regulated human angiogenesis gene, comprising,
contacting a sample comprising nucleic acid with a polynucleotide probe specific for a differentially-regulated human angiogenesis gene of claim 1 under conditions effective for said probe to hybridize specifically with said gene, and
15 detecting hybridization between said probe and said nucleic acid.
12. A method of claim 11, wherein said detecting is performed by:
Northern blot analysis, polymerase chain reaction (PCR), reverse transcriptase PCR, RACE PCR, or *in situ* hybridization.
- 20 13. A method of detecting a nucleic acid coding for a differentially-regulated human angiogenesis gene, comprising,
contacting a sample comprising nucleic acid with a polynucleotide probe specific for a differentially-regulated human angiogenesis gene of claim 3 under conditions effective for
25 said probe to hybridize specifically with said gene, and
detecting hybridization between said probe and said nucleic acid.
14. A method of claim 13, wherein said detecting is performed by:
Northern blot analysis, polymerase chain reaction (PCR), reverse transcriptase PCR,
30 RACE PCR, or *in situ* hybridization.

15. A method of treating a vascular disease or a disease associated with vascularization, comprising:

administering to a subject in need thereof a therapeutic agent which is effective for regulating expression of a differentially-regulated angiogenesis polynucleotide of claim 1, or
5 a polypeptide encoded thereby.

16. A method of claim 15, wherein said agent is an antibody specific for said polypeptide.

17. A method for identifying an agent that modulates the expression of a differentially-

10 regulated angiogenesis polynucleotide, or polypeptide encoded thereby, in cells capable of forming blood vessels, comprising:

contacting said cells with a test agent under conditions effective for said test agent to modulate the expression of a differentially-regulated angiogenesis polynucleotide of claim 1, or polypeptide encoded thereby, in said cells, and

15 determining whether said test agent modulates said polynucleotide or polypeptide.

18. A method of determining the angiogenic index of a sample comprising cells, comprising:

assessing, in said sample, the expression level of polynucleotide of claim 1, or a
20 polypeptide encoded thereof, whereby said levels are indicative of the angiogenic index.

19. A method of claim 18, wherein the angiogenic index is assessed by polymerase chain reaction using polynucleotide primers specific for said polynucleotide.

25 20. A method of claim 18, wherein the angiogenic index is assessed by detecting polypeptides coded for by said polynucleotides using specific antibodies.

21. A method of regulating angiogenesis in a system comprising cells capable of forming blood vessels, comprising:

30 administering to said system an effective amount of a modulator of a polynucleotide of claim 1, or a polypeptide coded thereby, under conditions effective for the modulator to

modulate said polypeptide, whereby angiogenesis is regulated.

22. A method of claim 21, wherein the modulator is an antibody specific-for said polypeptide.

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23. A method of claim 21, wherein the antibody is conjugated to a cytotoxic or cytostatic agent.

10 24. A method of claim 21, wherein regulating angiogenesis is inhibiting angiogenesis or stimulating angiogenesis.

25. A method of claim 21, wherein the system is a patient having a cancer, coronary artery disease, myocardial ischemia, or coronary arteriosclerosis.

15 26. A method of detecting polymorphisms in a differentially-regulated human angiogenesis gene, comprising,

comparing the structure of: genomic DNA comprising all or part of a differentially-regulated human angiogenesis gene, mRNA comprising all or part of a differentially-regulated human angiogenesis gene, cDNA comprising all or part of a differentially-regulated 20 human angiogenesis gene, or a polypeptide comprising all or part of a differentially-regulated human angiogenesis gene, with the complete structure of a differentially-regulated human angiogenesis gene of claim 2.

27. A method of claim 26, wherein said polymorphism is a nucleotide deletion, substitution, 25 inversion, or transposition.

28. A mammalian cell whose genome comprises a functional disruption of a differentially-regulated human angiogenesis polynucleotide of claim 1, or a mammalian homolog thereof.

30 29. A non-human, transgenic mammal comprising a cell of claim 28, said mammal showing defective angiogenesis.

30. An antibody which is specific for an epitope that is specific for a polypeptide of claim 7.
31. A method of advertising a differentially-regulated human angiogenesis polynucleotide or
5 polypeptide for sale, commercial use, or licensing, comprising,
displaying in a computer-readable medium a polynucleotide of claim 1, or a
polypeptide encoded thereby.